

NAVY TRAINING SYSTEM PLAN

FOR THE

TACTICAL OPERATIONAL

PREVIEW SCENE

N88-NTSP-A-50-9903/A

FEBRUARY 2001

TOPSCENE OPERATIONAL PREVIEW SCENE

EXECUTIVE SUMMARY

This Navy Training System Plan (NTSP) was developed by the Naval Air Systems Command (AIR 3.4.1.1) to identify the life cycle Manpower, Personnel, and Training (MPT) requirements associated with the Tactical Operational Preview Scene (TOPSCENE). TOPSCENE is intended to provide armed forces strike and assault support aircrews increased pre-mission rehearsal of missions within a scenario with which they are not familiar.

The TOPSCENE system consists of three configurations, the early model 3500, the current model 4000, and the latest model 400. These systems are or will be installed on all Aircraft Carriers and Amphibious Assault ships, and at several land-based sites. The TOPSCENE system is a computer-based system that provides interactive video of areas of interest in planning or rehearsing attack routes and targets. The system has the ability to be updated as required through a networking system. Terrain features, including altitude information, is depicted into a moving, three-dimensional presentation which enables aircrews to repeatedly “fly” their missions, become familiar with target areas and aimpoints, utilize terrain masking, avoid known threat areas, and make adjustments to planned routes.

Electronic Technicians (ET) will accomplish the TOPSCENE preventive maintenance requirements (general computer hardware maintenance and corrosion prevention and treatment). Information Systems Technicians (IT) personnel will accomplish Local Area Network (LAN) and all other corrective maintenance. No increase to existing Navy or Marine Corps manpower will be required to operate or maintain the TOPSCENE equipment.

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LIST OF ACRONYMS

CMC	Commandant of the Marine Corps
CNO	Chief of Naval Operations
COTS	Commercial Off-The-Shelf
CV	Aircraft Carrier
CVIC	Carrier Intelligence Center
CVN	Aircraft Carrier Nuclear
CVW	Carrier Air Wing
DBWG	Data Base Working Group
ET	Electronics Technician
Hz	Hertz
ILSP	Integrated Logistics Support Plan
IT	Information Systems Technician
JMCIS	Joint Maritime Command Integration System
JSIPS	Joint Service Imagery Processing System
MAG	Marine Aircraft Group
MAGTF	Marine Air-Ground Task Forces
MAWTS	Marine Aviation Weapons and Tactics Squadron
MCCDC	Marine Corps Combat Development Command
MPT	Manpower, Personnel, and Training
MRC	Maintenance Requirement Card
MRWG	Mission Rehearsal Working Group
NA	Not Applicable
NAS	Naval Air Station
NAVAIRSYSCOM	Naval Air Systems Command
NAVPERSCOM	Naval Personnel Command
NSAWC	Naval Strike and Air Warfare Center
NTSP	Navy Training System Plan
OAG	Operations Advisory Group
OPO	OPNAV Principal Official

TOPSCENE OPERATIONAL PREVIEW SCENE

LIST OF ACRONYMS

TAMPS	Tactical Automated Mission Planning System
TOPSCENE	Tactical Operational Preview Scene

TOPSCENE OPERATIONAL PREVIEW SCENE

PREFACE

This Approved Tactical Operational Preview Scene (TOPSCENE) Navy Training System Plan (NTSP) replaces the Draft version of November 1999. No comments were received from the fleet review of the draft. This NTSP complies with guidelines set forth in the Navy Training Requirements Documentation Manual, OPNAV Publication P-751-1-9-97. It provides current information on manpower, personnel, and training requirements.

PART I - TECHNICAL PROGRAM DATA

A. NOMENCLATURE-TITLE-PROGRAM

1. **Nomenclature-Title-Acronym.** Tactical Operational Preview Scene (TOPSCENE)
2. **Program Element.** To be determined

B. SECURITY CLASSIFICATION

1. **System Characteristics** Unclassified
2. **Capabilities** Unclassified
3. **Functions**..... Unclassified

C. MANPOWER, PERSONNEL, AND TRAINING PRINCIPALS

OPNAV Principal Official (OPO) Program Sponsor..... CNO (N789)

OPO Resource Sponsor CNO (N789)

Functional Mission Sponsor..... CNO (N789F)

Marine Corps Program Sponsor..... CMC(APW)

Developing Agency..... NAVAIRSYSCOM (PMA205)

Training Agency CINCLANTFLT
CINCPACFLT

Training Support Agency NAVAIRSYSCOM (PMA205)

Manpower and Personnel Mission Sponsor CNO (N12)
NAVPERSCOM (PERS-4, PERS-404)

Director of Naval Training CNO (N79)

Marine Corps Force Structure.....MCCDC (C53)

D. SYSTEM DESCRIPTION

1. **Operational Uses.** The TOPSCENE mission rehearsal system, hereafter referred to as TOPSCENE, is a stand-alone system that enables Naval Strike Warfare and Marine Air-Ground

Task Forces (MAGTF) aircrews to perform superior mission planning and have total familiarity with their mission routes and target areas in order to ensure mission success and high survivability. TOPSCENE utilizes Commercial Off-The-Shelf (COTS) components integrated to provide a mission rehearsal program, which generates high quality, free-roam perspective views in 3-D and in real time. Using the integrated visual generation and the operator inputs (stick and throttle joystick), TOPSCENE can view terrain at high and low altitudes while maneuvering through terrain and among 3-D cultural features. Country-sized databases display frame rates generally exceeding 30 Hertz (Hz) and are capable of networking with intelligence, imagery, and planning systems. Out-of-the window and Night Vision Device (NVD) views show effects of varying light conditions, fog, haze, etc. The system is completely deployable and will be installed on all aircraft carriers and deployed with Marine Expeditionary Units. The system is installed at various land-based sites for use while “gearing up” for a deployment.

All known Department of Defense (DoD) military services are currently using TOPSCENE systems and databases successfully in support of every U. S. military mission since Desert Shield and Desert Storm. TOPSCENE databases are made for all services at Naval Strike and Air Warfare Center (NSAWC) Fallon, and further development of and issuance of these databases is also provided by Hurlburt Field Air Force Base, Florida; Training and Contingency Division at the Washington Navy Yard; and the 160th Special Operations Training Regiment at Fort Campbell, Kentucky.

A yearly Navy Mission Rehearsal Operations Advisory Group (OAG) will afford the fleet a means to provide inputs for the required improvements to the system. A TOPSCENE Database Working Group (DBWG) has been established to address the database production issues. In addition, the Mission Rehearsal Working Group (MRWG), which meets quarterly, provides programmatic coordination and guidance between related Navy Program Offices and the OPNAV sponsor.

2. Foreign Military Sales. TOPSCENE has been in use by the other U. S. Armed Services, and there is a possibility that this system may be available to our allies in the future.

E. DEVELOPMENTAL TEST AND OPERATIONAL TEST. TOPSCENE has been in use for over 10 years and is composed of COTS components. Operational Evaluation (OPEVAL) or Technical Evaluation (TECHEVAL) were not planned or required.

F. AIRCRAFT AND/OR EQUIPMENT/SYSTEM/SUBSYSTEM REPLACED. Not Applicable (NA)

G. DESCRIPTION OF NEW DEVELOPMENT

1. Functional Description. TOPSCENE provides aircrew and ground personnel with familiarization of actual terrain and cultural features prior to flight or deployment to the area of

interest. The system uses national asset imagery databases derived from multiple sources for display.

2. Physical Description. TOPSCENE is located in the Carrier Intelligence Center (CVIC) spaces aboard aircraft carriers, squadron ready rooms on amphibious assault ships, and various shore locations. TOPSCENE consists of a rack and a half, occupying a space 44 inches wide, 70 inches tall, and 36 inches deep, with a total weight of 645 pounds. Electrical requirements require a dedicated 20-ampere circuit, 120-volt Alternating Current, at 60 Hz. TOPSCENE is permanently mounted with four mounting points on each rack. The full rack consists of one Silicon Graphics ONYX 2 computer, a 24-inch monitor, and two hot swap chassis. All components are shock mounted inside the rack and enclosed in aluminum containers. The remaining equipment consists of a Hewlett Packard laser printer and storage area.

3. New Development Introduction. Prototype TOPSCENE systems were developed and delivered to the Navy in 1989 and 1990. Fleet exposure to the prototype systems provided feedback that identified improvements and generated requests for additional units. Based on these requests, a number of engineering development models were improved and upgraded. Production unit level systems have been delivered to the Navy, Marines Corps, Army, and Air Force. Improvements and upgrades will be incorporated as TOPSCENE is further refined as approved by the OAG and OPNAV Resource Sponsor.

4. Significant Interfaces. A direct interface with the NSAWC was developed in 1998 to allow direct electronic access and connectivity to national imagery resources. This interface supports direct access with the afloat Joint Service Imagery Processing System – Navy (JSIPS – N), the Tactical Automated Mission Planning System (TAMPS), the Joint Maritime Command Integration System (JMCIS), and other systems.

5. New Features, Configurations, or Material. The model 4000 utilized the Silicon Graphics ONYX 2 Infinite Reality workstation resulting in improved graphics, special effects maintainability and size reduction. The model 400 utilizes a Silicon Graphics OCTANE workstation which represents a significant decrease in cost and size of footprint.

H. CONCEPTS

1. Operational Concept. TOPSCENE is a stand-alone system that only requires a user. TOPSCENE is not a watch station, and requires no sharing during use. Aviators from various platforms, for the purpose of mission rehearsal, operate the system. Currently assigned ship's company personnel (ET's and IT's) monitor the equipment for failure and/or malfunction.

2. Maintenance Concept

a. Organizational. This system is under an Integrated Logistics Support Plan (ILSP) for planned life cycle maintenance support. It is a stand-alone system that is used by aircrew, ground forces, and Special Operations personnel.

(1) Preventive Maintenance. Navy ET personnel will accomplish the TOPSCENE preventive maintenance requirements (general computer hardware maintenance, cleaning the equipment, checking filters and corrosion prevention and treatment) during deployment. Either military or civilian technical personnel, as determined by the Program Office, perform preventive maintenance ashore. Preventive maintenance is accomplished using approved TOPSCENE maintenance procedures.

(2) Corrective Maintenance. Both civilian and Navy ET and IT personnel perform corrective maintenance. This is determined on a case by case basis. Silicon Graphics equipment is repaired by certified personnel in accordance with the manufacturer's warranty requirement. Both civilian and military personnel conduct fault isolation, both individually and/or collectively, to determine failed or defective Shop Replaceable Assemblies (SRAs).

b. Intermediate. Civilian personnel perform intermediate maintenance. No requirements for military personnel are expected. There is no requirement for Support Equipment (SE), Automatic Test Equipment (ATE), or Special Test Equipment (STE). Common test equipment required is a multimeter.

c. Depot. Depot maintenance is performed at the system manufacturing facility, Lockheed Martin Vought Systems, Dallas, Texas, on an as required basis. Government technical representatives or Lockheed Martin Vought Systems perform modifications on-site when required.

d. Interim Maintenance. Contractor Engineering and Technical Services (CETS) personnel and Mission Rehearsal government technical representatives perform maintenance throughout the full service life of the equipment. There is no Navy Support Date (NSD) as such. Technical and advisory services are provided to operational communities for a period determined by PMA205. Civilian government technical representatives are located one each on the East and West Coast of the United States. There is a staff of engineers and support personnel located at Lockheed Martin Vought Systems manufacturing and integration facility in Dallas, Texas. There are Lockheed Martin Vought Systems engineers located at the NSA WC Data Base Generation Facility to support TOPSCENE. These two groups of individuals are tasked to provide engineering services as long as TOPSCENE is deployed.

e. Life Cycle Maintenance Plan. The formal life cycle maintenance plan is the contractual responsibility of the manufacturer and the government technical representatives that will provide maintenance and support for hardware and software on both a scheduled and unscheduled basis.

3. Manning Concept. Initial analysis and 10 years deployed operation indicates that there is no required increase in the allotted uniformed manpower. Personnel who operate TOPSCENE are already trained in their particular specialty and are using the equipment to sharpen skills and cognitive ability. Initial System Administration and Operator training is conducted during initial installation. Follow-on training is provided at NSA WC Fallon during the

pre-deployment cycle. Aircraft Carrier Intelligence Center (CVIC) ET and IT personnel are responsible for preventive maintenance and daily operational check. There are currently no figures available to document mean time between failure, mean time to repair, etc. The workload that has occurred has not resulted in requests for increased manpower from the fleet.

4. Training Concept. TOPSCENE training is provided during initial installation and as required through the TOPSCENE website for operators or maintainers. TOPSCENE is delivered, installed, and training provided by Civil Servant and contractor technical representatives at the delivery site. Training generally consists of approximately one hour of system operation for users (operators) and up to four hours of system administration for ET's at NSAWC during aircrew annual or pre-deployment training cycles. TOPSCENE does not require dedicated instructor training. Additional technical or training support is available as required from the TOPSCENE Technical Support Teams located on both coasts.

a. Initial Training. Initial training is On-the-Job Training (OJT) and is fulfilled at the time of installation. This oral training is of a general nature including computer uses and database update procedures.

b. Follow-on Training. TOPSCENE contractor personnel located at NSAWC, Fallon, Nevada, are available to provide follow-on training to Carrier Air Wing (CVW) detachments, approximately 80 aircrews per CVW, with six to eight detachments per year. Marine Aviation Weapons and Tactics Squadron (MAWTS)-1 provides training support for the Weapons and Tactics Instructor courses and related MAGTF training programs. TOPSCENE technical representatives provide refresher training to the Marine Expeditionary Units and others as requested. There is no formal follow-on training planned at this time.

c. Student Profiles. Systems Administrators are designated by the ship's CVIC Officer or the Combat Systems Maintenance Officer for the Navy and by the Operations Officer for the Marine Corps. Systems Administrators must possess basic computer systems knowledge and an understanding of the UNIX operating system. The computer systems technician must have knowledge of standard computer cleanliness techniques. Navy and Marine Corps aviators comprise the majority of the operators requiring user training. Additional training is provided to Intelligence Officers on various components as required.

d. Training Pipelines. At the current time there is no training pipeline designated for TOPSCENE. All training is conducted on-site during system installation.

I. ON-BOARD (IN-SERVICE) TRAINING. There is no further training planned at this time. TOPSCENE is intended to provide the rehearsal required for the safety and proficiency of the aircrews. No PQS exists for either operators or maintainers.

1. Proficiency or Other Training Organic to the New Development. The only proficiency training is through continued use of the equipment itself.

The Maintenance Training Improvement Program (MTIP) would normally be used as a training management tool that, through diagnostic testing, identifies individual training deficiencies. Since the bulk of both the preventive and all of the corrective maintenance is being performed by technical representatives, this program will not be utilized.

2. Personnel Qualification Standards. NA

3. Other Onboard or In-service Training Packages. NA

J. LOGISTICS SUPPORT

1. Manufacturer and Contract Numbers. The following is the result of the sole source procurement of the TOPSCENE system and the integrated support for this system.

CONTRACT NUMBER	MANUFACTURER	ADDRESS
Unknown	Lockheed Martin Vought Systems	1701 West Marshall Drive Grand Prairie, TX 75051

2. Program Documentation. No ILSP has been developed for TOPSCENE. There is no MRC deck, and no maintenance instruction pages have been developed.

3. Technical Data Plan. Technical manuals and operator manuals are available for fleet users and are delivered upon installation. Replacement manuals are available through PMA205 or the technical representatives.

4. Test Sets, Tools, and Test Equipment. No special equipment is required for fleet personnel. All that is required for the local level is common test equipment.

5. Repair Parts. The manufacturer provides all repair parts. No parts for this system are planned to be integrated into the Navy supply system.

6. Human Systems Integration. NA

K. SCHEDULES

1. Schedule of Events

a. Installation and Delivery Schedules. The delivery and installation schedule is the same, as installation normally takes one day and is ready for use when installed. All FY99 installations have been completed.

INSTALLATION SCHEDULE

ACTIVITY	FY99	FY00	FY01	FY02	FY03
CV 63 USS Kitty Hawk	1				
CV 64 USS Constellation	1				
CVN 65 USS Enterprise	1				
CV 67 USS John F. Kennedy	1				
CVN 68 USS Nimitz		1			
CVN 69 USS Dwight D. Eisenhower	1				
CVN 70 USS Carl Vinson	1				
CVN 71 USS Theodore Roosevelt	1				
CVN 72 USS Abraham Lincoln	1				
CVN 73 USS George Washington		1			
CVN 74 USS John C. Stennis	1				
CVN 75 USS Harry S. Truman		1			
CVN 76 USS Ronald Reagan					1
Fighter Weapons School	1				
NAS Fallon	3				
NAS Oceana	3				
PMA205 (Germany)	1				
VDS Alexandria, Virginia	3				
PMA205 Dallas, Texas	2				
LMVS Dallas, Texas	2				
HMM-264	1				
HMM-266	1				
HMM-364	1				
MAG-11	1				
MAG-31	1				
MAG-36	1				
MAG-39	1				

ACTIVITY	FY99	FY00	FY01	FY02	FY03
RLWFTRD	1				
MAWTS-1	2				
Model 4000		4	4	0	1
Model 400		4	4	2	4

b. Ready For Operational Use Schedule. The systems are ready for operational use upon delivery and installation.

c. Time Required to Install at Operational Sites. Normal installation time is one day, plus one day for on-site training.

d. Foreign Military Sales and Other Source Delivery Schedule. TOPSCENE has been in use by the other U. S. Armed Services, and there is a possibility that this system may be available to our allies in the future.

e. Training Device and Delivery Schedule. NA

L. GOVERNMENT FURNISHED EQUIPMENT AND CONTRACTOR FURNISHED EQUIPMENT TRAINING REQUIREMENTS. NA

M. RELATED NTSPs AND OTHER APPLICABLE DOCUMENTS

DOCUMENT OR NTSP TITLE	DOCUMENT OR NTSP NUMBER	PDA CODE	STATUS
Tactical Automated Mission Planning System (TAMPS) NTSP	N88-NTS-A-50-9301C/D	PMA233	Draft Jan 00
Advanced Mission Computer and Displays Initial NTSP	Unnumbered	PMA209	Initial Dec 97
Joint Service Imagery Processing System NTSP	N88-NTP-A-50-9204B/A	PMA209	Approved Feb 99
Tactical Operational Scene (TOPSCENE) Generic Mission Rehearsal Trainer	Training Device Requirements Document (TDRD)	PMA205	Revision 1 Oct 98

PART II - BILLET AND PERSONNEL REQUIREMENTS

The following elements are not effected by TOPSCENE and, therefore, are not included in Part II of this NTSP:

II.A. Billet Requirements

- II.A.1.a. Operational and Fleet Support Activity Activation Schedule
- II.A.1.b. Billets Required for Operational and Fleet Support Activities
- II.A.1.c. Total Billets Required for Operational and Fleet Support Activities
- II.A.2.a. Operational and Fleet Support Activity Deactivation Schedule
- II.A.2.b. Billets to be Deleted in Operational and Fleet Support Activities
- II.A.2.c. Total Billets to be Deleted in Operational and Fleet Support Activities
- II.A.3. Training Activities Instructor and Support Billet Requirements
- II.A.4. Chargeable Student Billet Requirements
- II.A.5. Annual Incremental and Cumulative Billets

II.B. Personnel Requirements

- II.B.1. Annual Training Input Requirements

PART III - TRAINING REQUIREMENTS

The following elements are not effected by TOPSCENE and, therefore, are not included in Part III of this NTSP:

III.A.1. Initial Training Requirements

III.A.2. Follow-on Training

III.A.2.a. Existing Courses

III.A.2.b. Planned Courses

III.A.2.c. Unique Courses

III.A.3. Existing Training Phased Out

PART IV - TRAINING LOGISTICS SUPPORT REQUIREMENTS

The following elements are not effected by TOPSCENE and, therefore, are not included in Part IV of this NTSP:

IV.A. Training Hardware

IV.A.1. TTE / GPTE / SPTE / ST / GPETE / SPETE

IV.A.2. Training Devices

IV.B. Courseware Requirements

IV.B.1. Training Services

IV.B.2. Curricula Materials and Training Aids

IV.B.3. Technical Manuals

IV.C. Facility Requirements

IV.C.1. Facility Requirements Summary (Space/Support) by Activity

IV.C.2. Facility Requirements Detailed by Activity and Course

IV.C.3. Facility Project Summary by Program

PART V - MPT MILESTONES

COG CODE	MPT MILESTONES	DATE	STATUS
OPO	Approved Training Device Requirement Document (TDRD)	Jul 91	Completed
OPO	Updated TDRD	Feb 96	Completed
PDA	Began Model 3500 Installation Schedule	Oct 98	Completed
PDA	Established TAMPs V (6.2) Interface	Jan 99	Completed
OPO	Updated TDRD	Jan 99	Completed
PDA	Completed Model 3500 Installation	Jan 99	Completed
OPO	Developed Draft NTSP	Nov 99	Completed
PDA	Promulgated Draft NTSP for review	Dec 99	Completed
PDA	Submitted Proposed NTSP to OPNAV	Jun 00	Completed
DCNO (MPT)	Approve and promulgate NTSP	Feb 01	Completed
CMC	Complete MAG Model 4000 Installation	Sep 02	Pending
PDA	Complete CVN Model 4000 Installation	Sep 02	Pending
CMC	Complete MAG Model 400 Installation	FY03	Pending
PDA	Complete CVN Model 400 Installation	FY03	Pending

PART VI - DECISION ITEMS / ACTION REQUIRED

DECISION ITEM OR ACTION REQUIRED	COMMAND ACTION	DUE DATE	STATUS
Preview, Rehearsal, and Combat Training Users Survey (PRACTUS) will be used as the primary guide for future TOPSCENE functional improvements and modifications.	PMA205		Continuing
Development of a system interface with TAMPS 6.X. NAVAIR must coordinate and develop the ability to share and pass threat, route, profile, and environmental data between TAMPS and TOPSCENE.	PMA205 / PMA233		Complete with TOPSCENE

PART VII - POINTS OF CONTACT

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